

BRITISH COLUMBIA DEPARTMENT OF LANDS

FOREST SERVICE

HON. WILLIAM R. ROSS, K.C., Minister of Lands

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BRITISH COLUMBIA TIMBER  
FOR PRAIRIE FARMS

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IMPLEMENT SHEDS AND GRANARIES

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FARM BUILDINGS SERIES

BULLETIN No. 8



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VICTORIA, B. C.

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1915

# British Columbia

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## LUMBER, SHINGLES

and other Products of

Douglas Fir

Western Larch

Mountain Western Pine

Western Red Cedar

Western Hemlock

Spruce

Western White Pine



BRITISH COLUMBIA TIMBER FOR  
PRAIRIE FARMS.

IMPLEMENT SHEDS AND GRANARIES

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# The Lumbering Industry of British Columbia.

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## TO THE PRAIRIE FARMER.

In the forests of British Columbia there stands to-day more than half Canada's supply of commercial timber. Forest surveys made during recent years throughout the Province show 30,000,000 acres of timber ready for the market, and 45,000,000 acres of younger growth that will reach commercial size during the present century. The present merchantable stand is estimated at 400,000,000,000 feet board measure.

Taught by the experience of older countries, British Columbia has adopted a vigorous conservation policy and is carefully protecting her vast forest areas from fire and misuse.

The manufacture of lumber and other wood products is the most important industry of this forest Province. Each year 1,500,000,000 feet of timber is cut to supply the sawmills, pulp and paper mills, and other wood-using factories west of the Canadian Rockies. But the forests produce more wood each year than the mills can find markets for, and so much timber goes to waste. The most of the timber is public property; the prosperity of the Province depends very largely upon the lumbering industry; and it is therefore the duty of the Government to help secure the widest possible market for British Columbia lumber both in foreign countries and in Canada.

The main market for Western lumber to-day is in the Prairie Provinces of Canada. Each farm is, after all, a factory for agricultural produce and needs a well-built plant like any other factory. This means good buildings—a comfortable, convenient house, good barns, granaries, silos, fences, and shelter for machinery. The best material for this is wood. It is cheap, handy to use, warm, sanitary, and it lasts. British Columbia therefore desires to give the citizens of Alberta, Saskatchewan, and Manitoba full information concerning her forest products, asking them to bear in mind that these products are “grown and manufactured in Canada,” and that trade between the Provinces of the Canadian West is the surest foundation for our common prosperity.

### **The Bulletins.**

Valuable bulletins on farm buildings are now being issued by agricultural authorities all over Canada and the United States. The College of Agriculture of the University of Saskatchewan was engaged in this most useful work; the Government of British Columbia entered into a co-operative agreement with the University, and the series of farm bulletins listed on the last page of this booklet is the result. The agricultural information contained herein, and the plans and bills of material were prepared under the immediate supervision of Mr. W. J. Rutherford, Dean of the College of Agriculture, and thus give up-to-date and authoritative views on the agricultural subjects dealt with. The information concerning lumber is supplied by the Forest Service of the Government of British Columbia.

In the building plans, five things are aimed at in particular:—

- (1.) **That they should be specially designed to meet Prairie conditions.**
- (2.) **That they should be simple and practical to meet the needs of the average farmer.**

(3.) That ordinary stock sizes of lumber should be used throughout in order to keep the cost low.

(4.) That it should be easy for the farmer to make additions to the buildings whenever more accommodation should be needed.

(5.) That the details of the plans should be readily alterable to suit individual needs.

The plans printed in these bulletins show enough detail for them to be used as working plans. Any one wishing to obtain large-scale working plans can secure them at cost by writing to the **Chief Forester, Victoria, B. C.** A reference list of bulletins and of sources of agricultural information will be found on the last page.

#### **Note.**

While it is understood that the agricultural authorities in Alberta and Manitoba have already published pamphlets on farm buildings, and contemplate issuing others, it is believed that all Prairie farmers will be interested in the British Columbia bulletins, and editions for general distribution on the Prairies have accordingly been printed.

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UNIVERSITY OF SASKATCHEWAN

COLLEGE OF AGRICULTURE.

WALTER C. MURRAY, *President.*

W. J. RUTHERFORD, *Dean.*

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Implement Sheds and Granaries  
for Prairie Farms


BY

A. R. GREIG, *Professor of Agricultural Engineering.*

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IMPLEMENT SHEDS.

HE depreciation of farm machinery on the Prairies, due to the lack of housing and care, is as great as that due to the actual use in the field. When a machine is not properly housed and cared for, it loses at least 10% of its value each year. The average life of a binder, for example, is almost doubled by protecting it from the weather. Recent investigations made by the Commission of Conservation show that the majority of Western farmers do not appreciate these facts. Out of nearly 100 representative farmers visited in different parts of the three Prairie Provinces, only a few were found who kept their implements and machinery under cover and painted.

This is the more unfortunate because the matter is of particular importance on the Prairies, where more farm implements are used than anywhere else in Canada. The Dominion census of 1910 gave the total value of the farm implements in Manitoba, Saskatchewan and Alberta as \$110,000,000, or over 40% of the total value of the implements on all the farms of Canada. The total number of Prairie farms was 203,000, and the average value of implements per farm was \$540.00 as compared with the average for all Canada of \$360.00

per farm. Proper care in the way of housing and painting, etc., would effect a saving on the average Prairie farm of at least 10% or \$54.00 each year, and in many cases a great deal more. An implement shed is obviously, therefore, one of the best investments a farmer can make. It will almost double the life of his machinery, is cheap to build, and will pay for itself in a few years.

As a rule it is most desirable to make the implement shed a separate building, the advantages being greater convenience, better appearance, lesser fire risk, and ease of enlargement. Space in barns is generally too expensive and inconvenient for storing the implements. A narrow shed may, of course, be built on the side of a barn, but has the disadvantages of greater fire risk, difficulty of enlargement and darkening that side of the barn.

A workshop equipped with carpenter and blacksmith tools is very useful, especially on farms a long distance from town, and at critical times such as harvesting, when long delays for repairs would be ruinous. All the necessary tools can be obtained generally for around \$50.00. The workshop may conveniently form a part of the implement shed, though some prefer a separate building because of the risk of fire.

During winter all implements should be carefully overhauled and made ready for work in the spring. It is a good plan to put a tag on each machine when its work is finished for the season, stating just what repairs and adjustments are required, so that any necessary new parts may be procured and repairs made before it is needed again. In order to prevent rust all bearing and wearing parts should be thoroughly oiled the last day the machine is used, and should be well coated with tallow or axle-grease before it is finally stored for the winter.

Paint protects both iron and wood from the weather. It fills the pores and cracks, prevents checking, prolongs the life of the machine and much improves its appearance. For the woodwork, a mixture of pure linseed oil with red or white lead and a small proportion of liquid dryers is good. Raw linseed oil may be used alone, allowed to soak in and dry and followed by a coat of paint. The paint, of course, should always be of a kind suitable for outdoor use.



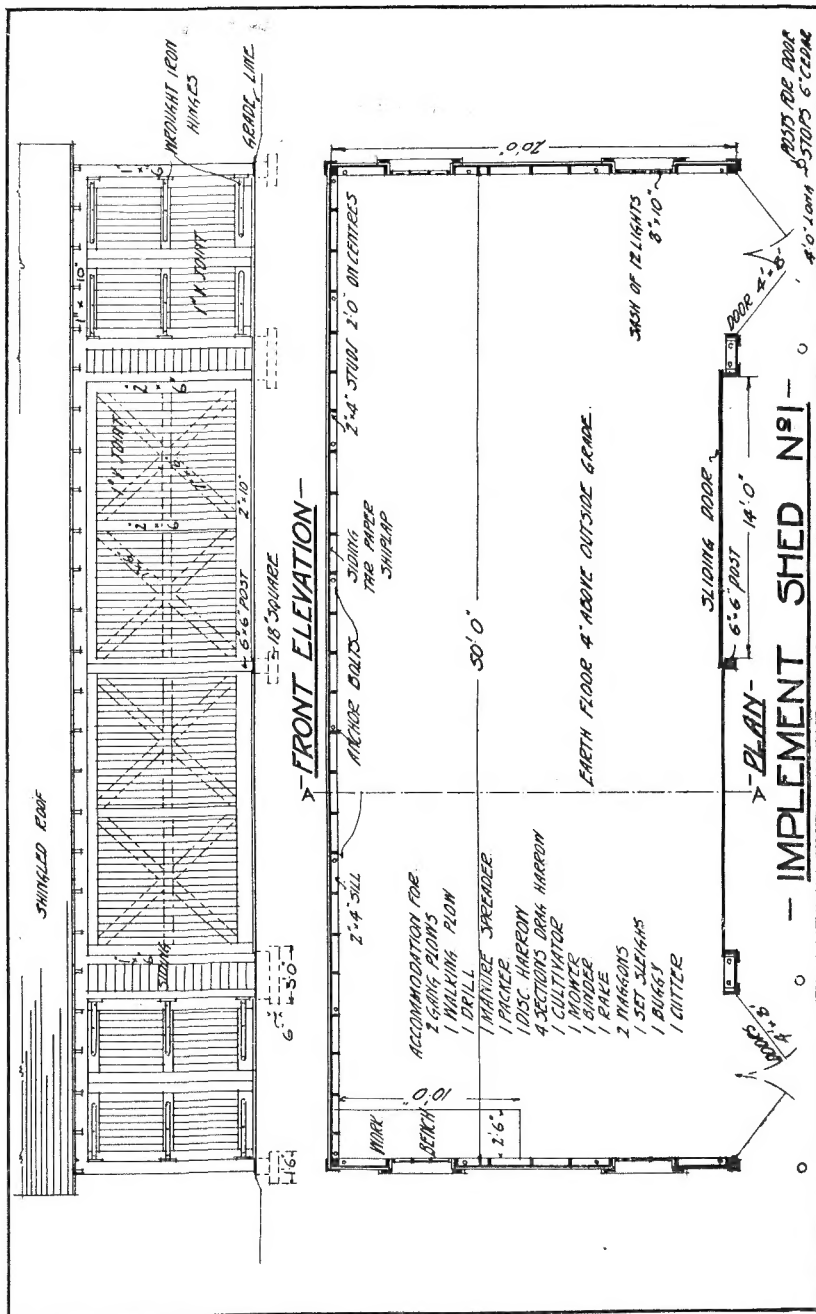


Figure 1. One of the best investments a farmer can make. It will almost double the life of his machinery, is cheap to build and will pay for itself in a few years. This shed, 50 ft. x 20 ft., is suitable for a half section or section farm.

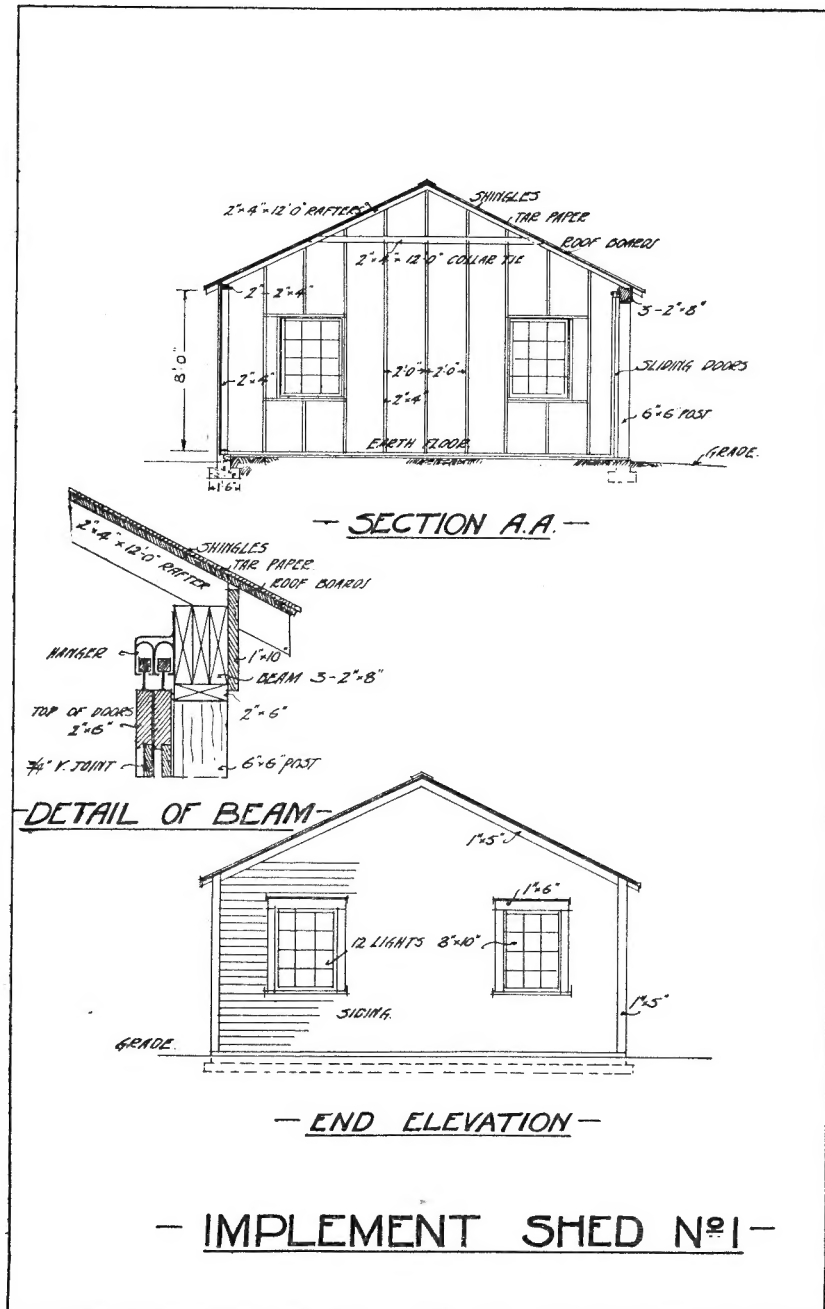


Figure 2. Showing the simple frame construction and the manner of building the beam above the sliding doors.

**IMPLEMENT SHED No. 1. FIGURES 1 AND 2.**

This is a small shed 20 feet wide by 50 feet long, suitable for a half-section farm. It can be enlarged at either end as required. A binder can be taken through the fourteen-foot doors in the middle with little trouble.

In building the concrete foundation, excavate a trench 1 foot 6 inches wide for the footing until a good bottom is reached. Have the forms made 8 inches apart for the wall, carrying them 6 inches above ground and down to within 6 inches of the bottom of the footing. Support the forms well from the ground. Then fill with concrete mixed one of cement to five of gravel. Be sure the gravel is free from top soil, is not too fine, and is well mixed. Set the 20 anchor bolts in the concrete, leaving them projecting above sufficiently to go through the 2 x 4 sill and to be fastened with a nut and double washers. Make a good foundation about 24 inches square for the 6 x 6 post between the sliding doors. Put a 2-inch dowel about 6 inches into the concrete and about 4 inches into the bottom of the post.

Cinders or ashes make a good floor after they are well tramped down. If they are not easily procured, gravel could be used. The floor should be raised up 2 or 3 inches higher than the ground outside, so that it will remain dry.

The work bench is shown in this shed for the purpose of having it handy for repairs. The workshop proper should preferably be a separate building, where there would be less fire risk.

The doors are built with a 2-inch frame rabbeted  $\frac{3}{4}$  inch for the V-joint; the central rails are 1 inch by 6 inches and are mortised into the stiles. The swinging doors have their hinges bolted to the 2 pieces of 2 x 6 studding, which are covered with a piece of shiplap and then by the 1 x 6 casing. Hooks and eyes are specified for all the hinged doors to hold them open or shut. There is nothing harder on a door than allowing it to swing in the wind.

## Bill of Materials, Implement Shed No. 1.

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
1	6	6	8	24	Post between sliding door.
2	4	4	16	43	Bearers and legs, work bench.
3	2	10	10	50	Work bench.
6	2	8	16	128	Beam over sliding door.
6	2	8	10	80	Beam over hinged door.
2	2	6	16	32	Plate under beam sliding door.
2	2	6	10	20	Plate under beam, hinged door.
12	2	6	8	96	Studs front wall.
2	2	6	2	4	Sill front wall between doors.
12	2	4	16	128	Sills, sides and back, plates back.
8	2	4	14	75	Studs end wall.
52	2	4	12	416	Rafters.
8	2	4	12	64	Studs end wall and trimmings to windows.
26	2	4	12	208	Collar ties to each rafter.
4	2	4	10	27	Trimming to windows.
4	2	4	10	27	Studs end wall.
28	2	4	8	150	Studs back wall.
1	2	4	8	5	Sills, sides and back; plates back.
Total				1577	

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
2	2	10	16	53	Door rails, bottom of sliding-door, rabbetted.
2	2	10	8	27	Door rails, bottom hinged door to cut 4 pieces 4' 0".
2	2	6	16	32	Door rails, top of sliding door, rabbetted.
2	2	6	8	16	Door rails, top of hinged door, rabbetted, to cut 4 pieces 4' 0".
14	2	6	8	112	Door stiles, rabbetted.
4	1	10	16	53	Front and back frieze.
4	1	10	10	34	Front and back frieze.
2	1	6	14	14	Door rails centre of sliding doors.
8	1	6	10	40	Doors, cross braces.
4	1	6	10	20	Corner boards.
4	1	6	8	16	Door casings.
2	1	6	8	8	Door rails centre of sliding door to cut 4 pieces 4' 0".

Bill of Materials, Implement Shed No. 1.—*Concluded.*

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
4	1	6	4	8	Doors rails centre hinged to cut 4 pieces 4' 0".
2	1	5	16	13	Ridge boards.
4	1	5	12	20	Frieze on gable ends.
4	1	5	10	17	Corner boards.
2	1	5	10	8	Ridge boards.
2	1	4	16	11	Ridge boards.
2	1	4	10	7	Ridge boards.
4	1	4	8	11	Door stops, hinged doors.
Total Finish Lumber .....520					

- 450 feet board measure, V-joint in 14 feet lengths, for doors.
- 1,200 feet board measure, siding, for walls.
- 2,600 feet board measure, shiplap, for walls and roof.
- 12,500 British Columbia red cedar, edge-grain shingles (50 bundles).
  - 4 sash, 9 lights, 10" x 14"; outside size 2' 10½" wide x 3' 10½" high.
  - 4 frames, sills and casings, 6" wall, for sashes.
  - 4 cedar posts, 6" diameter x 4' long, for door stops.
  - 6 rolls tar paper.

HARDWARE.

- 20 bolts, ⅝ x 8", with nuts and double washers, for the foundations.
- 12 wrought iron T hinges, 36", and bolts for 2" hanging doors.
- 30 feet double track and bolts, for sliding doors.
- 6 door hangers and bolts for 2" doors.
- 2 barn door latches.
- 8 6" hooks and eyes, for hinged doors.
- 60 lbs. 1¼" shingle nails, galvanized or zinc-clad.
- 30 lbs. 4" common nails.
- 50 lbs. 2½" common nails.
- 20 lbs. 2" finishing nails, for doors, etc.
- 30 lbs. 2¼" flooring nails, for siding.
- 4½ yds. gravel, for foundation.
- 25 bags cement, for foundation.

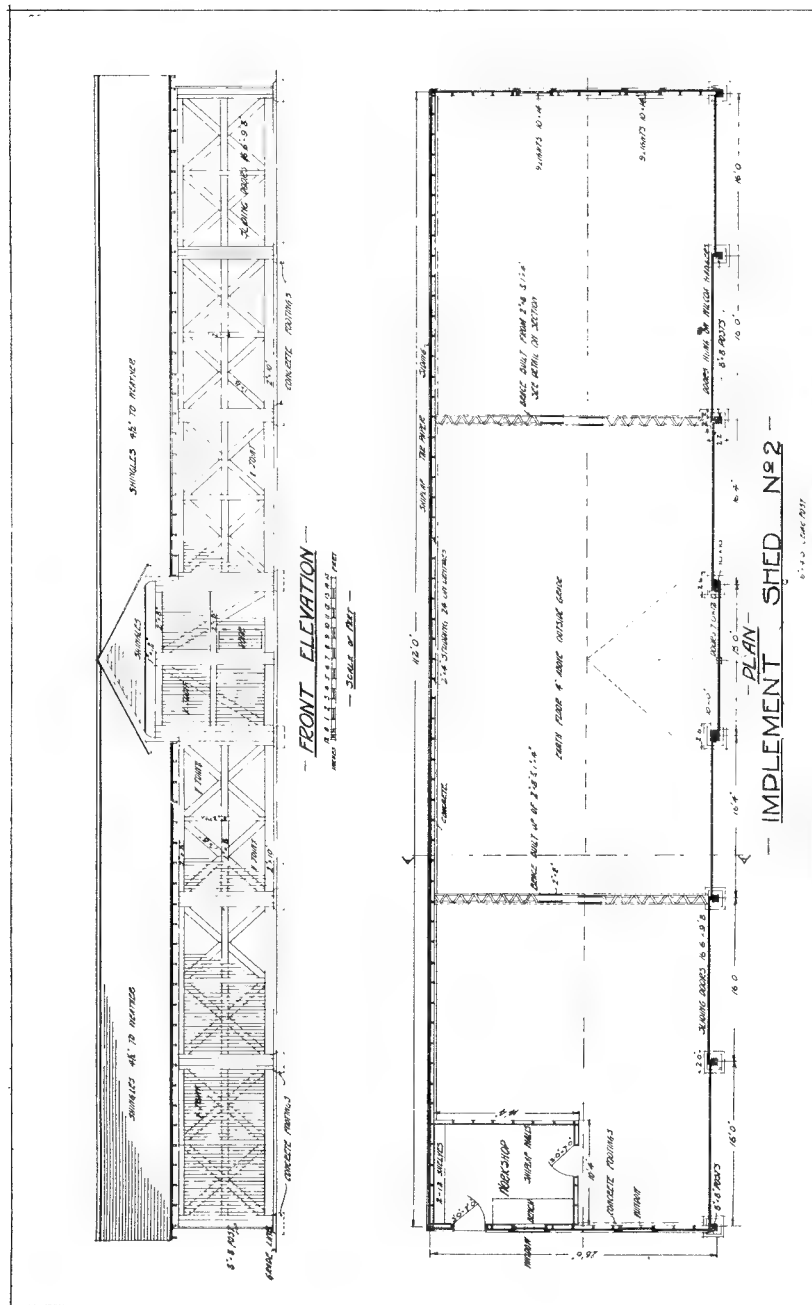


Figure 3. A bigger shed, 112 ft. long and 28 ft. wide, suitable for a large grain farm. The middle doors are 12 feet high to take an engine and separator. Two binders or four drills can be stored in a row across the building.

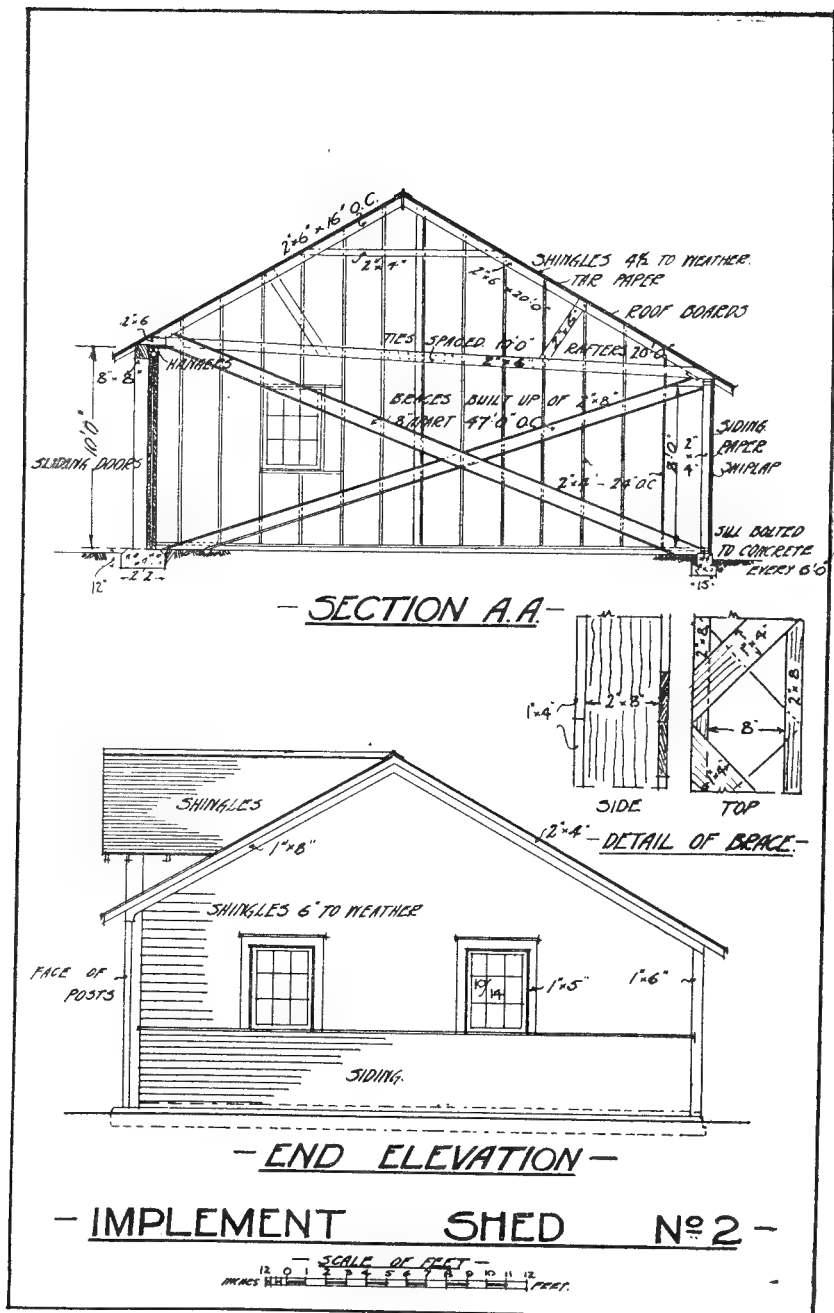


Figure 4. There are no posts to interfere with storage. The cross section shows the location of the long diagonal braces, and the detail shows how they are built up.

**IMPLEMENT SHED No. 2. FIGURES 3 AND 4.**

In size this shed, 28 feet 6 inches wide by 112 feet long, is much larger and its storage capacity correspondingly greater than shed No. 1, and it can be similarly increased or decreased in length as desired. It is intended for the larger grain farms of one or more sections, with an equipment of an engine and separator, and several drills, binders, etc. Any separator and engine, except the largest sizes, can be taken through the middle doors (12 feet high) and stored inside. Binders can be taken through the sliding doors without any trouble. The building is wide enough to accommodate two binders or four drills in a row, one behind the other.

The construction is similar in general to that of shed No. 1. There are no posts inside the building, but it is strengthened by two pairs of diagonal braces, built up of 2 x 8 plank and lattice work. The floor may be of earth, or preferably gravel or cinders, and should be raised two or three inches above the outside level to insure dryness.

**Bill of Materials, Implement Shed No. 2.**

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
1	10	10	16	133	Beam over large doorway.
2	10	10	12	200	Post large doorway.
6	8	8	16	512	Beams sliding doorways.
6	8	8	10	320	Posts large doorway.
1	4	8	12	32	Corbels on posts under joists of beams to cut 6 pieces 2' 0".
4	2	8	20	107	Valley rafters.
16	2	8	16	341	Cross braces plate to foundation.
3	2	8	16	64	Ridge piece.
5	2	8	14	93	Ridge piece.
60	2	6	20	1200	Rafters, back.
54	2	6	16	864	Rafters, front.
11	2	6	16	176	Ties across at plate.
1	2	6	16	16	Ridge at gable.
7	2	6	16	112	Door hanger strip.
11	2	6	14	154	Ties across at plate.
11	2	6	10	110	Braces, ties to rafters.
8	2	6	10	80	Rafters at gable.
2	2	6	8	16	Rafters at gable.



Bill of Material, Implement Shed No. 2.—*Concluded.*

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
1	2	6	8	8	Rafters at gable to cut 2 pieces 4' 0".
2	2	6	6	12	Rafters at gable.
4	2	4	18	48	Studs end wall.
27	2	4	18	288	Sills and plates.
8	2	4	16	85	Studs end wall.
4	2	4	16	43	Plates and studs gables.
8	2	4	14	75	Studs end wall.
4	2	4	12	32	Studs end wall.
58	2	4	10	387	Collar ties.
16	2	4	10	107	Studs end wall and workshop.
60	2	4	8	320	Studs back wall.
11	1	6	12	66	Splices to ties to cut 22 pieces 6 feet.
1	1	4	18	6	Lattice bracing.
12	1	4	16	64	Lattice bracing.
3	2	10	8	40	Bench.
2	1	4	16	43	Bench frame.
6	1	12	10	60	Shelving and division.
Total Framing Lumber—6214					

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
6	2	10	16	160	Bottom rails sliding doors, rabbeted.
2	2	10	8	27	Bottom rails centre doors, rabbeted.
6	2	8	16	128	Top rails sliding doors, rabbeted.
4	2	8	12	64	Stiles, centre doors.
4	2	8	8	43	Centre and top rails, centre doors, rabbeted.
18	2	6	10	180	Stiles sliding doors, rabbeted.
1	2	6	6	6	Stile, small door in larger door.
1	2	6	2	2	Bottom rail, small door.
1	2	4	10	7	Stiles small door, rabbeted.
1	2	4	2	1	Top rail small door, rabbeted.
*10	2	2	16	53	Belt strip.
*1	2	2	10	3	Belt strip.
14	1	10	16	187	Frieze front and back walls.
2	1	8	20	27	Frieze end walls to gable.
2	1	8	16	21	Frieze end walls to gable.
2	1	8	12	16	Braces centre doors.
29	1	8	12	192	Braces sliding doors.

### Bill of Material, Implement Shed No. 2.—*Concluded.*

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
2	1	8	10	13	Frieze to gable over centre door.
8	1	6	16	64	Ridge boards.
4	1	6	10	20	Corner boards.
12	1	6	8	48	Centre rails sliding doors, rabbeted.
8	1	5	16	53	Ridge boards.
2	1	5	10	8	Corner boards.
Total Finish Lumber.....1323					

\*Random lengths to make up the same total lineal feet will answer for these items.

- 1,160 feet board measure 1" V-joint in 10 feet lengths, for doors.
- 260 feet board measure 1" V-joint in 12 feet lengths, for doors.
- 7,720 feet board measure shiplap, walls, roof and work shop.
- 850 feet board measure siding, walls below belt.
- 180 lineal feet, 2x3 water table.
- 57,000 British Columbia Red Cedar edge grain shingles for roof and walls (228 bundles).
- 4 sash, 9 lights 10" x 14", outside measure 2' 10½" wide x 3' 11" high.
- 4 sash frames, sills and casing, 6" wall.
- 1 door frame, sill and casing, 6" wall.
- 2 cedar posts, 6" x 4' for swinging door stops.

### HARDWARE.

- 18 rolls tar paper.
- 96 feet double door track and bolts.
- 18 door hangers and bolts, sliding doors.
- 28 bolts ⅝" x 10" nuts and double washers, for foundation.
- 3 pair 48" heavy wrought iron hinges, for middle doors.
- 2 pair 4½" butt hinges, for small doors.
- 1 pair 6" strap hinges, for small door.
- 280 lbs. shingle nails, 1¼", zinc clad or galvanized.
- 50 lbs. 2¼" flooring nails for siding and V-joint.
- 150 lbs. 2½" common nails for shiplap.
- 130 lbs. 4" nails for framing.
- 25 lbs. 2" finishing nails.
- 14 hooks and eyes, 6".
- 32 feet galvanized iron for valleys, 18" wide.
- 8 yards gravel for foundation.
- 43 bags cement for foundation.

## GRANARIES.

Granaries will probably vary more in size, construction and general appearance than any other one class of farm buildings. They range all the way from the temporary bin of several hundred bushels to the line elevator of thirty or forty thousand. Between these two extremes there is a great variety of types to be found, because any structure which even temporarily is used for the storage of grain is commonly known as a granary.

Granaries are very necessary buildings; in fact the permanent granary is one of the most used buildings around the farmstead. Oats for the horses, meal for the cows, wheat for the fowls all come from the granary. In the spring the empty bins are often used for the setting hens or perhaps for some early chicks during rainy weather. Smoked meats are often hung from the rafters, and in the passage ways one can nearly always find monkey-wrenches, nails, cans of axle-grease and the wagon-jack. The reader is not to infer that this is the proper use to make of a granary, but it simply illustrates a very common condition of affairs around that much used and abused building.

In the early days on the Prairies the homesteader in some instances provided for his grain simply by boarding up a bin 10 or 12 feet square and 7 or 8 feet high, using the earth for a floor and a covering of flax straw for a roof. Abandoned shacks, vacant rooms in houses, empty barn lofts, box stalls in stables, and parts of various other buildings, have all been requisitioned from time to time for the storage of grain. They all have been used as granaries and no doubt met the requirements at the time, but at best were only temporary makeshifts.

The carelessness that many Western farmers formerly exhibited toward storing their grain, and the great loss entailed through the use of unsuitable buildings as storehouses, led to the expression that "the large grain farmer of Western Canada often wastes more grain in a single season than an Eastern farmer's entire crop." This statement is in a measure true. Too little attention has been paid to the construction of suitable granaries in the past; but as the

country develops, a tendency on the part of the farmer to improve this condition is noted.

### TYPES OF GRANARIES.

There are two kinds of regular granaries—temporary and permanent. The first are usually rather small, may be either stationary or portable, and are used for the most part simply as bins for threshing into in the field, thus saving the necessity of hauling the grain during the busy time of threshing. They will vary in capacity from 600 to 1,500 or 2,000 bushels. Where large farming operations are carried on and threshing from the stook is practised, field bins or portable granaries are practically indispensable, but they should be used in conjunction with a permanent granary located in close proximity to the other farm buildings.

The permanent granaries are of larger size, ranging all the way from a couple of thousand bushels to the large elevators with a capacity of thirty or forty thousand bushels. These last are styled elevators, but are in reality simply granaries, where the grain is handled by means of a power elevator. Excessively large granaries are not practicable for ordinary farm use. The use to which they are to be put will determine their location. If they are intended simply for the storage of market grain, they may be at some distance from the other buildings. If intended for holding feed and seed grain, they should be placed near the farm buildings, so that a chopper can be installed and feed ground as required.

Many thousands of dollars are annually lost to the farmers of Western Canada through the presence of weeds in the grain. The presence of these weeds is not only a menace to the growing crops and tends to lower the yield, but causes it to receive a lower grade and a correspondingly low price. The farmer who ships dirty grain to market not only pays freight on a large quantity of weed seeds, but receives a lower grade and dockage and loses a large quantity of valuable stock food in the form of screenings. Grain that is cleaned at home receives a higher grade on the market. There will be no dockage, and the screenings, which are composed not only of weed seeds but contain large quantities of broken and shrunken grains, are available for feed. Sheep and hogs will make good gains

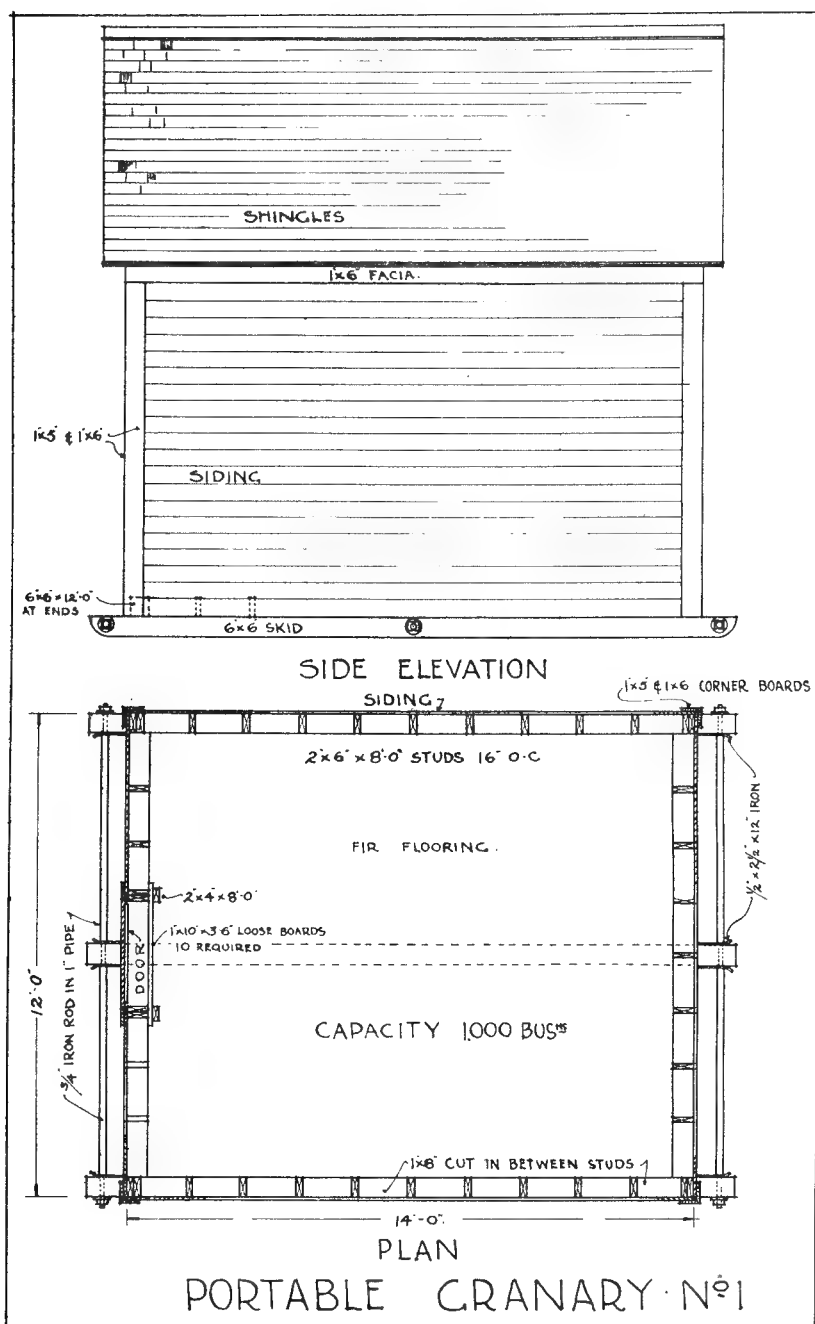


Figure 5. Portable granaries make it unnecessary to haul grain during the busy time of threshing. This one has a capacity of 1000 bushels, is strongly constructed and should last a lifetime.

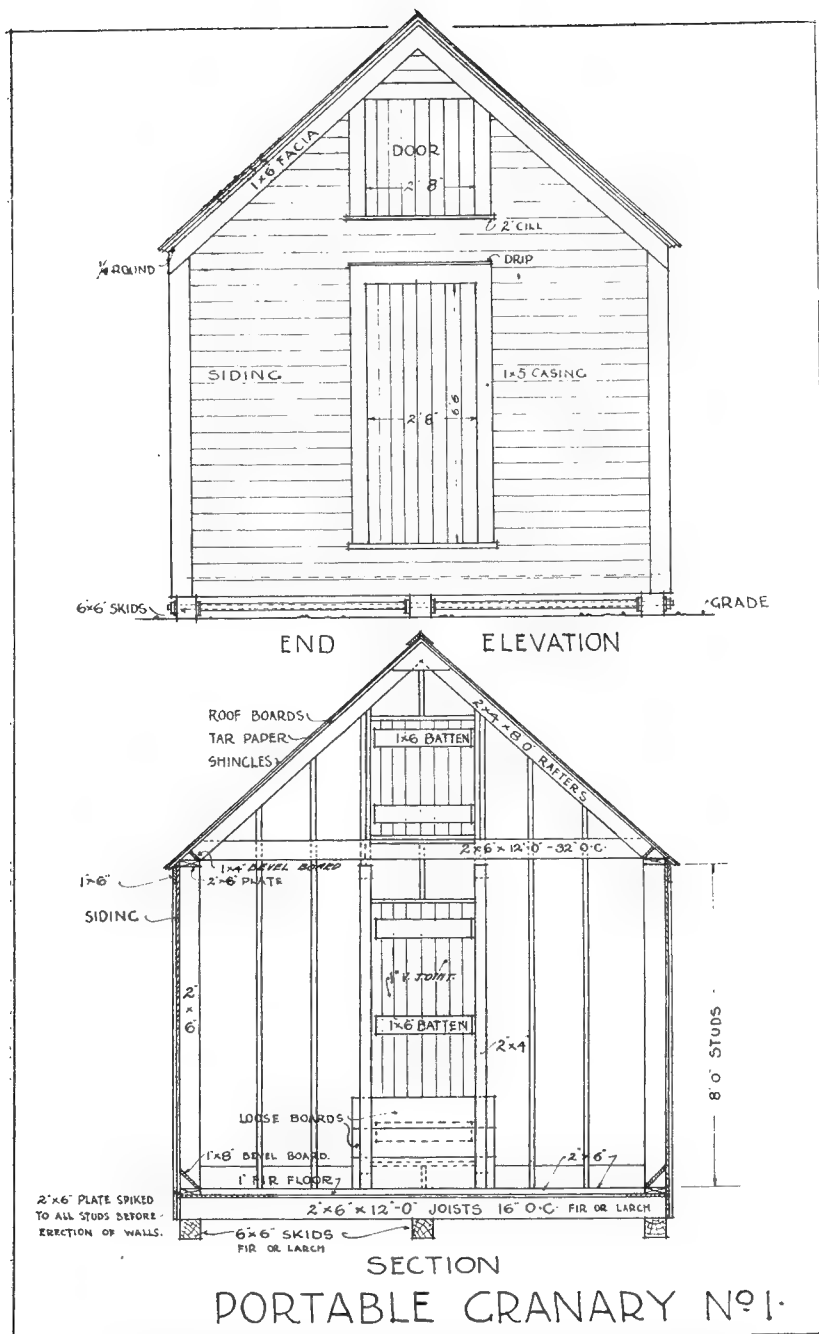


Figure 6. The granary is filled and emptied through the end doors. Loose boards keep the pressure off the large door. The bevel boards prevent the grain from lodging between the studs and make it easy to clean the floor out.

on them and when fed in conjunction with other foods, screenings will return a profit which compares favorably with that part of the crop marketed through the elevator. Clean seed grain is even more important than market grain and all permanent granaries should be provided with sufficient floor space for the operation of a fanning mill for this purpose.

#### PORTABLE GRANARY No. 1, FIGURES 5 AND 6.

The portable granary shown in Figure 5 is 12 feet by 14 feet with 8 foot walls, and has a capacity of about 1000 bushels to the roof plate level. It is provided with small doors in the gables for filling and a full length door in one end for emptying. Loose boards set on edge and slipped into a groove in the door jamb keep the grain from pressing on the door. They can easily be put into place as the granary is filled and taken out as it is emptied. Three 6 x 6 pieces of Douglas Fir or Western Larch are used as runners or skids, the middle one being necessary to prevent the centre of the floor from sagging when the bin is filled to capacity with wheat. The runners are kept from spreading by  $\frac{3}{4}$ -inch iron rods running through them. The joists are laid crossways of the runners, spaced 16 inches apart from centre to centre, and must be securely spiked. A tight floor of inch stuff, either shiplap or regular flooring, preferably the latter, is placed directly on the joists. The studs are set on the sill, which in turn is spiked on top of the flooring. The rafters are spaced the same as the studs and carried on a plate. The 1 x 4 and 1 x 8 bevel boards set between the rafters and also between the studs prevent the grain from lodging between the latter and make it easier to clean the floor out. Cross ties at every second rafter add greatly to the strength of the building. The drop siding used on the outside of the studs must be securely nailed to withstand the lateral pressure of the grain; a few boards nailed across the studs inside will relieve some of this pressure. Extra strength can be secured if desired, by stretching a piece of heavy wire across from side to side right through the building, and securely fastening it to each wall; this ties the walls together but does not interfere with storage.

Sometimes roof hatches are used for filling, but as a general thing end doors are superior as it is difficult to keep the roof hatch from leaking. If desired, a spout can be built into one or both sides for emptying the top part of the grain.

### Bill of Materials, Portable Granary No. 1.

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
3	6	6	16	144	Skids.
2	6	6	12	72	Sills.
1	2	8	12	16	Sills to doors to cut 3 pieces 4' 0".
1	2	6	18	18	Door trimming to cut 6 pieces 3' 0".
2	2	6	14	28	Sills under studs.
2	2	6	14	28	Plate.
6	2	6	14	84	Studs end wall.
1	2	6	14	14	To cut short studs between doors.
9	2	6	12	108	Joists.
2	2	6	12	24	Sills under studs.
4	2	6	12	48	Studs end wall.
5	2	6	12	60	Collar ties.
4	2	6	10	40	Studs end wall.
26	2	6	8	208	Studs.
11	2	4	16	117	Rafters to cut 22 pieces 8' 0".
2	2	4	8	11	Guides for loose boards at door way.
Total Framing Lumber---1020					

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
2	1	10	14	23	Loose boards at doorway, to cut 8 pieces 3' 6".
1	1	10	8	7	Loose boards at doorway, to cut 2 pieces 3' 6".
2	1	8	16	21	Bevel boards at junction of wall and lower plate.
1	1	8	19	9	Ridge pole.
2	1	8	12	16	Bevel boards at junction of wall and lower plate.
1	1	7	16	9	Jambs, large door, to cut 2 uprights and one header.
2	1	7	10	12	Jambs, small doors, to cut 6 pieces 3' 0".



Bill of Materials, Portable Granary No. 1.—*Concluded.*

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
2	1	6	16	16	Fascia at eaves.
4	1	6	10	20	Fascia at gables.
1	1	5	16	7	Ridge board.
1	1	5	14	6	Casing large door, to cut 2 pieces 6' 6".
4	1	5	10	17	Corner boards.
2	1	5	10	8	Casing small doors, to cut 6 pieces 3' 0".
1	1	5	4	2	Casing large door, to cut 1 piece 3' 6".
1	1	4	16	5	Ridge board.
2	1	4	14	9	Bevel boards on roof plate.
4	1	4	10	13	Corner boards.
* 3	1	2	16	8	Water table.
* 1	1	2	6	1	Water table.
Total Finish Lumber..... 209					

\*Random lengths to make up the same total number of lineal feet will answer for these items.

- 600 feet board measure siding.
- 210 feet board measure 1" T and G flooring.
- 80 feet board measure 1" V-joint for doors.
- 310 feet board measure shiplap for roof boarding.
- 2,500 British Columbia Red Cedar Shingles (10 bundles).

HARDWARE.

- 15 lbs 4" common nails.
- 11 lbs. 2½" common nails.
- 6 lbs. 2½" flooring nails.
- 12½ lbs. 1¼" galvanized or zinc clad shingle nails.
- 8 forgings ½" x 2½" x 12" for draw bars on ends of skids.
- 4 bolts ½" x 7½".
- 8 bolts ½" x 7".
- 3 rods ¾" x 12' 3" with nuts and washers on each end.
- 6 pieces pipe 1" x 5' 2".
- 6 bolts ⅝" x 12" for bolting 6" x 6" sills to 6" x 6" skids.
- 1 roll tar paper.
- 3 pairs 8" T hinges.
- 1 thumb latch.
- 2 buttons.

**PERMANENT GRANARY No. 2. FIGURES 7 AND 8.**

This is a fairly large granary with a bin capacity of about 6000 bushels of wheat. It is 24 feet by 50 feet with 10 foot walls, and has a driveway 8 feet wide in the centre through which a team and wagon may be driven, and from which all of the ten bins are filled and emptied. After the bins are all full, one or both ends of the driveway can be boarded up and accommodation made for an additional two thousand bushels. If feed oats are stored in the driveway, enough would probably be fed out by the middle of winter to make room for the engine and fanning mill. If a small elevator is used in connection with the fanning mill, the grain from one bin can be run through the mill and elevated directly into the next. The driveway when not in use for storing grain can be utilized to advantage for housing a buggy, democrat wagon or some of the smaller farm implements. The length may be lessened or extended as desired, but as a rule it would be better policy to erect two such granaries rather than one of twice the length shown. A granary of this kind enables a farmer to store his grain safely until he has time to haul it, to hold it all or a part of it for a rise in price and also protects him from the considerable loss sometimes caused by the use of unsuitable buildings.

**Bill of Materials, Permanent Granary No. 2.**

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
2	2	12	12	48	Cleats at joints of outside joists to cut 8 pieces 3' 0".
125	2	12	10	2500	Joists.
32	2	10	8	427	Loose plank partitions.
12	2	8	12	192	Sills under joists.
2	2	6	12	24	Ridge pole.
3	2	6	10	30	Ridge pole.
10	2	6	10	100	Cross ties.
4	2	6	10	40	Beams over doors.
6	2	6	10	60	Door frames.
20	2	6	8	160	Cross ties at roof plate level.
16	2	4	16	171	Studs end wall.

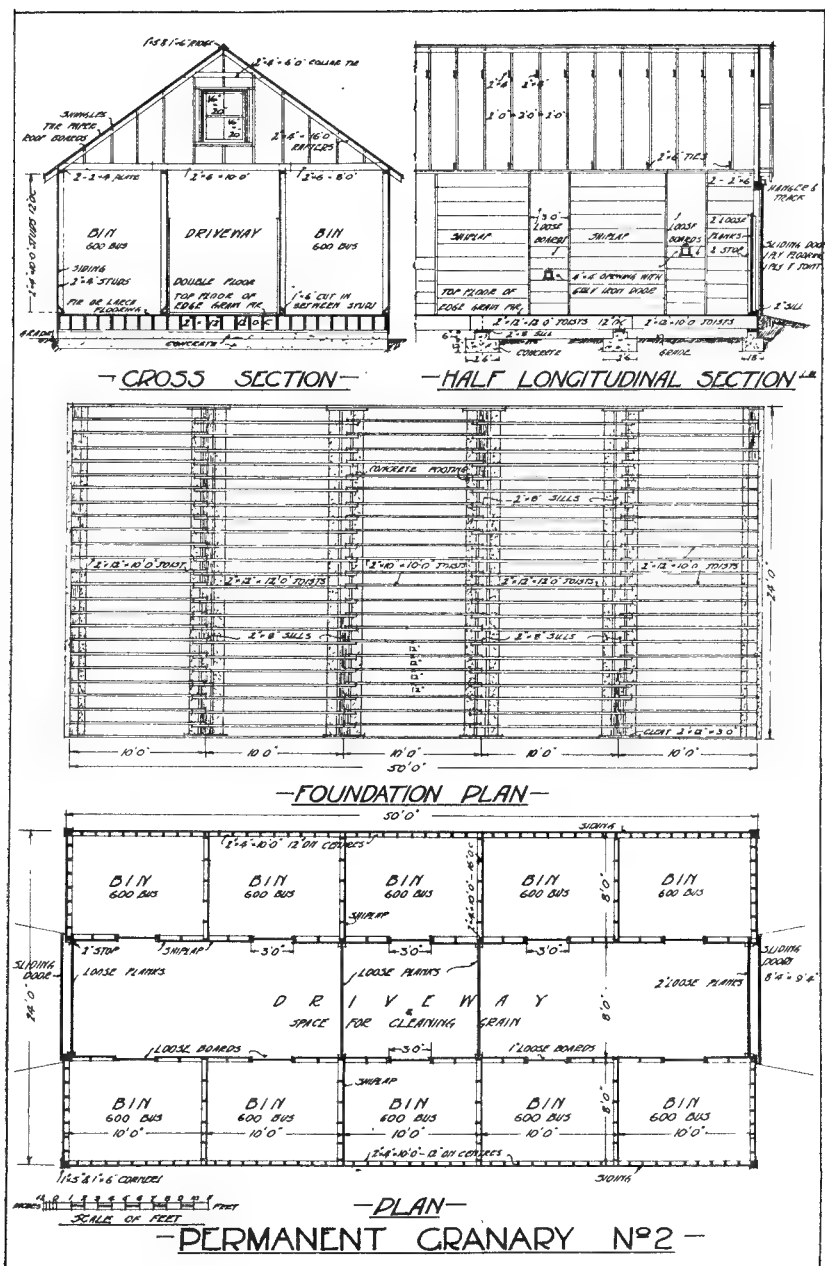


Figure 8. Suitable for a large grain farm. A total capacity, including the central driveway, of about 8000 bushels. All the ten bins are filled and emptied from the driveway.

## Bill of Materials, Permanent Granary No. 2.—Continued.

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
56	2	4	16	597	Rafters.
*25	2	4	16	267	Plates for roof and on top of partitions.
6	2	4	16	64	Sills over joists.
1	2	4	16	11	Sills.
12	2	4	14	112	Studs end walls.
4	2	4	14	37	Sills.
8	2	4	12	64	Studs end walls.
1	2	4	12	8	Studs end walls to cut 2 pieces 6' 0".
27	2	4	12	216	Collar ties to cut 54 pieces 6' 0".
4	2	4	12	32	Rails and braces to sliding doors.
8	2	4	10	53	Rails and braces to sliding doors.
10	2	4	10	66	Sills.
198	2	4	10	1320	Studs side walls and partitions.
4	2	4	10	27	Sliding door track fixing.
6	2	4	8	32	Studs end walls.
8	2	4	8	43	Plates on top of cross partitions.
Total Framing Lumber....6701					

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
30	1	10	12	300	Loose boards for doors to bins to cut 120 pieces 3' 0".
2	1	10	12	20	Frieze.
8	1	10	10	67	Frieze.
4	1	8	16	43	Frieze.
6	1	6	16	48	Bevel boards cut in between studs to bins.
5	1	6	14	35	Bevel boards cut in between studs to bins.
4	1	6	14	28	Corner boards.
1	1	6	12	6	Ridge board.
2	1	6	12	12	Door header.
4	1	6	10	20	Door casing.
4	1	6	10	20	Ridge boards.
10	1	6	10	50	Bevel boards cut in between studs to bins.
4	1	6	10	20	Cover boards to sliding door fixing.
4	1	5	14	23	Corner boards.
1	1	5	12	5	Ridge boards.

Bill of Materials, Permanent Granary No. 2.— *Concluded.*

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
4	1	5	10	17	Ridge boards.
6	1	5	10	25	Door frames.
10	1	4	10	33	Bevel boards cut in between studs to bins.
40	1	2	10	67	Stops to form guides for loose boards to bins.
Total Finish Lumber..... 839					

\*Random lengths to make the same number of lineal feet will answer for these items.

- 200 feet board measure 1" V-joint in 10 feet lengths for doors.
- 1,50 feet board measure 1" T. & G. fir or larch flooring, 2nd grade.
- 500 feet board measure 1" T. & G. edge grain fir or larch flooring for central driveway.
- 3,900 feet board measure shiplap.
- 2,300 feet board measure siding.
- 16,500 British Columbia red cedar edge grain shingles (66 bundles).
  - 2 sash 4 lights 16" x 20"; outside measurement 3' 0" wide x 3' 9" high.
  - 2 sash frames, sills and casing for 5" wall.

HARDWARE.

- 135 lbs. 4" common nails for framing.
- 80 lbs. 2½" common nails for shiplap.
- 150 lbs. 2¼" flooring nails for flooring and siding.
- 10 lbs. 2¼" finishing nails.
- 80 lbs. 1¼" shingle nails, galvanized or zinc clad.
- 2 lengths single track, 18 feet each, for sliding doors.
- 6 hangers for 2" doors.
- 4 hooks and eyes for doors.
- 36 anchor bolts ⅝" x 8" with nuts and double washers for foundation.
- 10 pieces 6" x 10" galvanized iron slides to small openings in bins for emptying grain.
- 5 rolls tar paper.
- 15 yards gravel for foundation.
- 80 bags cement for foundation

**PERMANENT GRANARY No. 3. FIGURES 9 AND 10.**

In Figures 9 and 10 a permanent granary suitable for a half-section farm is shown. It is 22 feet by 30 feet and will hold approximately 2500 bushels in the 11 separate bins. The bins are filled from the outside through small doors near the top of the wall and they all open into the central floor space which is intended to be used for cleaning, weighing and treating the grain. The large number of bins make it possible to keep the different kinds and varieties of seed grain separate. At the front to the left of the door, a space has been left for placing a small portable engine which can be used for running either a chopper or a fanning mill. The flooring from the door sill is sloped as far as the end of the first bin, with a grade of 1 foot in 8 feet. The unloading platform in front of the doorway is about 2 feet 6 inches from the ground or nearly on a level with the bottom of a wagon box. This is much more convenient than a low sill when seed grain in bags has to be loaded into a wagon.

Plenty of light and ventilation is necessary when grain is being cleaned. It is a dusty job and requires a certain amount of draft to enable the mill to do its best work. Provision has been made for this by placing a large window at either end of the building. Altogether this style of granary will prove to be a very convenient one in which to work, is economical to build and meets all the requirements of a comparatively cheap and practical farm granary.

**Bill of Materials, Permanent Granary No. 3.**

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
1	4	4	12	16	Supports under joists platform, to cut 3 pieces 4' 0".
1	4	4	10	13	Posts to platform to cut 3 pieces 3' 0".
1	2	12	8	16	Stringers to steps of platform, to cut 2 pieces 4' 0".
2	2	12	8	32	Joists for inclined floor, split diagonally.
1	2	10	12	20	Steps to platform, to cut 3 pieces 4' 0".
5	2	8	16	106	Sills under joists.

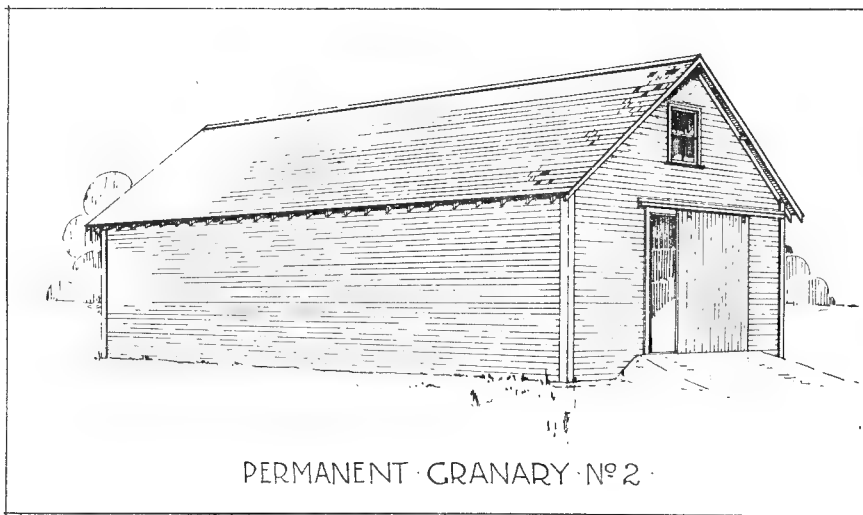


Figure 7. Dirty grain causes a loss of millions of dollars annually to the farmers of Western Canada. In a permanent granary the grain can be cleaned at home.

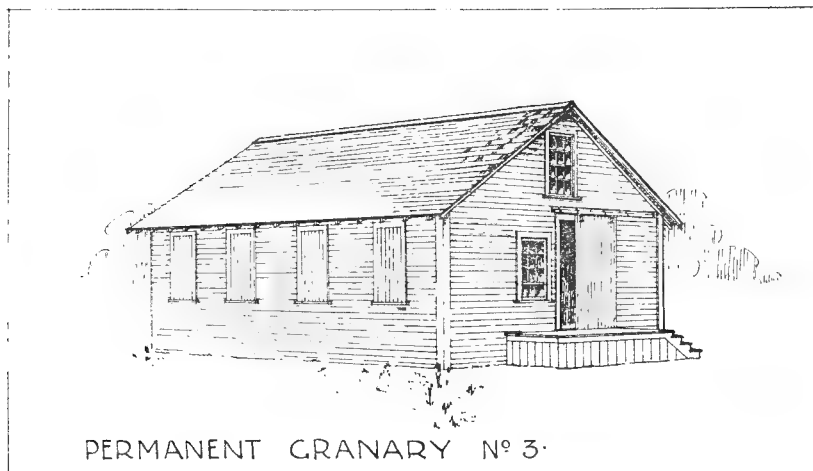


Figure 9. It is 22 feet wide and 30 feet long with a bin capacity of 2500 bushels. The bins are filled from the outside. Suitable for a half-section farm.

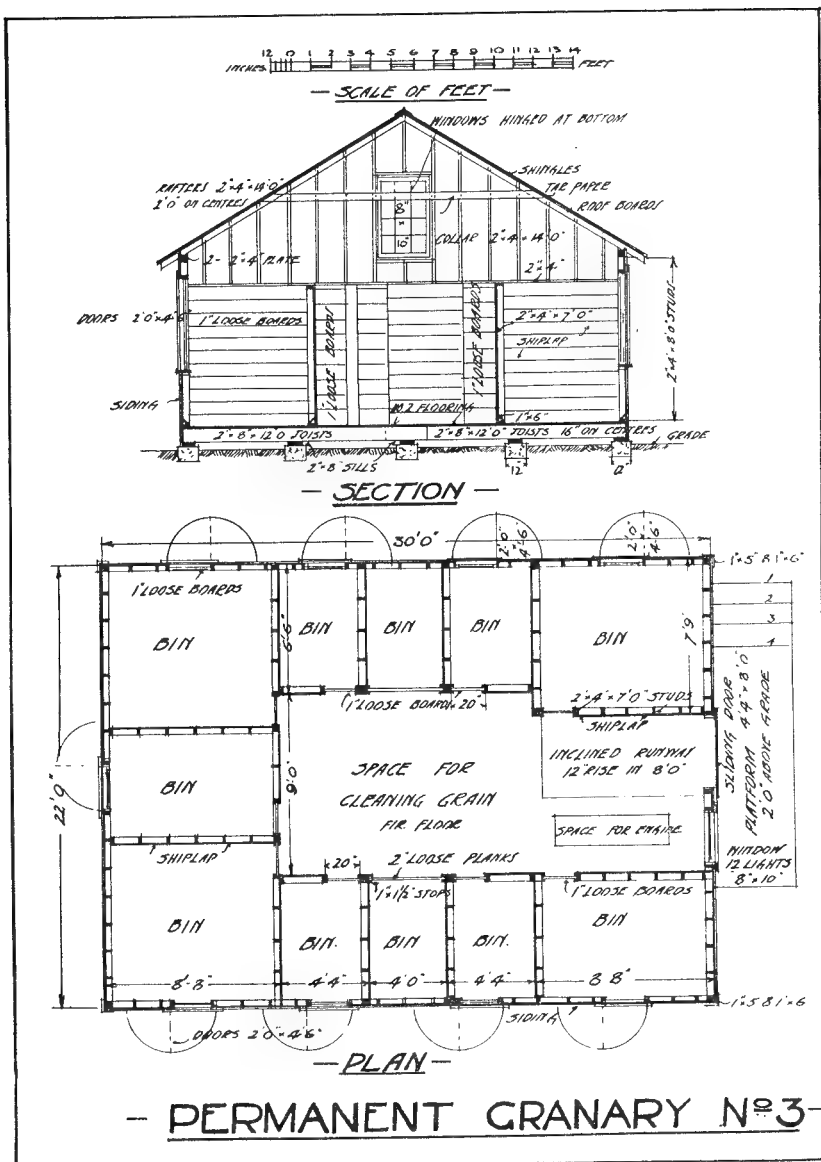


Figure 10. All the 11 bins open to the central space as well as to the outside. The central space can also be used for storing grain.



Bill of Materials, Permanent Granary No. 3.—*Continued.*

FRAMING LUMBER					Used for.
No. of Pieces.	Inches Wide.	Inches Wide.	Feet Long.	Feet Board	
5	2	8	14	93	Sills under joists.
48	2	8	12	768	Joists.
4	2	8	12	64	Joists to platform.
1	2	8	8	11	Joists to platform to cut 2 pieces 4' 0".
2	2	6	16	32	Ridge pole.
1	2	6	12	12	Whaling strip on wall under 4" x 4" supports.
* 12	2	4	16	128	Sill on floor.
8	2	4	16	85	Studs end wall and trimming openings
8	2	4	16	85	Plates on walls.
* 7	2	4	16	75	Plates on partitions.
36	2	4	14	336	Rafters.
34	2	4	14	317	Collar ties.
8	2	4	14	75	Studs end wall and trimming openings.
* 1	2	4	14	9	Sill on floor.
* 2	2	4	12	16	Sill on floor.
8	2	4	12	64	Studs end wall and trimming openings.
1	2	4	12	8	Studs end wall and trimming opening, to cut 2 pieces 6' 0".
* 1	2	4	12	8	Plates partitions.
1	2	4	10	7	Sliding door track fixings.
8	2	4	10	53	Studs end wall and trimming openings.
58	2	4	8	309	Studs, side walls.
77	2	4	8	411	Studs, partitions.
22	1	2	14	51	Stops for loose board doors to cut 44 pieces 7' 0".
12	1	2	12	24	Stops for loose board doors to cut 36 pieces 4' 0".
Total Framing Lumber....3244					

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure.	
2	2	6	12	24	Door sills to cut 8 pieces 3' 0".
1	2	6	8	8	Door sills to cut 1 piece 5' 0". 1 piece 3' 0".
4	1	10	16	53	Frieze.
4	1	8	14	37	Frieze at gables.
3	1	6	16	24	Door frame each to cut 2 jambs 4' 6", 3 headers 2' 2".
2	1	6	16	16	Ridge boards.

Bill of Materials, Permanent Granary No. 3.—*Concluded.*

FINISH LUMBER					Used for.
No. of Pieces.	Inches Thick.	Inches Wide.	Feet Long.	Feet Board Measure	
*10	1	6	16	80	Bevel strips between studs in bins.
* 1	1	6	14	7	Bevel strips between studs in bins.
4	1	6	14	28	Door jambs to cut 12 pieces 4' 6".
* 3	1	6	12	18	Bevel strips between studs in bins.
1	1	6	10	5	Cover board to sliding door track.
4	1	6	10	20	Corner boards.
2	1	6	8	8	Jambs large door.
1	1	6	6	3	Header large door to cut 4' 6".
2	1	5	16	13	Ridge boards.
9	1	5	12	45	Door casing each to cut 2 sides 4' 6" and 1 top 3' 0".
4	1	5	10	17	Corner boards.
2	1	5	8	7	Side casing large door.
1	1	5	6	3	Top casing large door to cut 5' 2".
4	1	4	16	21	Battens, small doors.
Total Finish Lumber.....					437

\*Random lengths to make the same number of lineal feet will answer for items marked thus.

- 2,100 feet board measure shiplap.
- 1,400 feet board measure siding.
- 900 feet board measure 1" flooring, fir or larch.
- 150 feet board measure V-joint in 14' and 10' lengths.
- 9,000 British Columbia Red Cedar shingles (36 bundles).
- 3 sash, 12 lights 8" x 10"; outside size 2' 4½" wide x 3' 10" high.
- 3 sash frames, sills and casing for 5" wall.

## HARDWARE.

- 65 lbs. 4" common nails for framing.
- 65 lbs. 2½" common nails for shiplap.
- 70 lbs. 2¼" flooring nails for flooring and siding.
- 8 lbs. 2" finishing nails.
- 45 lbs. galvanized, zinc clad or zinc shingle nails.
- 1 single door track, 10' long.
- 2 hangers and bolts for 2" door.
- 9 pair 6" strap hinges for bin doors.
- 18 door buttons for bin doors.
- 10 hooks and eyes, 4".
- 2 pair 5" strap hinges for windows.
- 3 rolls tar paper for roof.
- 6 yards gravel for foundation.
- 33 bags cement for foundation.

## BRITISH COLUMBIA DEPARTMENT OF LANDS

### FOREST SERVICE

HON. WILLIAM R. ROSS, Minister of Lands.

---

## Wood as a Building Material

Wood is supreme for **all-round** usefulness.

It is the **cheapest** building material obtainable.

It is also the **lightest**.

It is the **strongest**, weight for weight.

It is the **easiest** to work; **any one** can use it.

A wooden building is by far the **simplest** to **erect**.

Wood is **attractive** in **appearance** and has **great variety** and **beauty** for interior finish.

Unlike metal and masonry, wood is almost a **non-conductor** of **heat** and **cold**.

A building with wooden walls and a wooden shingle roof is **warm** in winter and **cool** in summer and **dry** all the time.

Wood is therefore particularly **suitable** for **houses** and **barns**.

Wood is very **durable** in all kinds of building work **above ground**.

It will give **generations** of **service**, especially if well painted where exposed to the weather.

For use in **contact** with the **soil**, as mud-sills or fence-posts, a preservative should be applied or a specially resistant wood such as Western Red Cedar should be used.

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# Woods to Use

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## Grown in British Columbia—Manufactured in British Columbia.

Woods differ in their qualities of strength, hardness, and durability. Certain kinds are particularly suited for certain uses. It is important to use the right wood in the right place.

(1.) **General Building Work.**—Douglas Fir, Western Larch, Western Hemlock, Mountain Western Pine, Mountain and Coast Spruce, Western White Pine.

(2.) **Framing and Dimension Timber, Posts, Beams, Rafters, Studs, Sills, Plates, Joists.**—Light construction: Same as No. 1. Heavy construction: Douglas Fir, Western Larch, Western Hemlock.

(3.) **Rough Lumber or Sheathing not exposed to Weather (Inside Work or covered by Siding or Lath and Plaster).**—Any British Columbia wood.

(4.) **Rough Outside Sheathing exposed to Weather (Outbuildings, etc.).**—Douglas Fir, Western Larch, Mountain Western Pine, Western Red Cedar, Coast and Mountain Spruce, Western White Pine.

(5.) **Siding.**—Western Red Cedar, Douglas Fir, Mountain Western Pine, Mountain and Coast Spruce.

(6.) **Roofing.**—Western Red Cedar edge-grain shingles, with galvanized, zinc-clad, zinc, or copper nails.

(7.) **Flooring, Stair Stepping, Sidewalks.**—Douglas Fir, Western Larch, Western Hemlock. Use edge-grain stock for hardest wear.

(8.) **Interior Finish, Panelling, Trim.**—Douglas Fir, solid or veneer (a beautiful grain, superior to most hardwoods), Western Larch, Western Hemlock, Western Red Cedar, Mountain Western Pine, Western White Pine.

(9.) **Doors, Window-sash.**—Douglas Fir, Western Red Cedar, Western Larch, Mountain Western Pine, Western White Pine.

(10.) **Fence-pickets.**—Douglas Fir, Western Larch, Western Red Cedar, Mountain Western Pine.

- (11.) **Piling, Cribbing.**—Douglas Fir, Western Larch.
- (12.) **Silos, Tanks.**—Douglas Fir, Western Larch, Western Red Cedar.
- (13.) **Ground-sills, Skids, Fence-posts, Poles, Conduits, Drains, and wherever Wood is in Contact with the Ground.**—Western Red Cedar or creosoted wood. Use Douglas Fir or Western Larch where strength and hardness are essential.
- (14.) **Furniture, Tables, Settees, etc.**—Douglas Fir, Mountain Western Pine, Coast or Mountain Spruce, Western White Pine, Western Red Cedar.

**Note.**—Western Hemlock is superior in every way to Eastern Hemlock—an entirely different tree—and should not be confused with it.

In ordering lumber, it is well to remember that short lengths (i. e., under 10 ft.) cost less than long, and where they will answer the purpose it pays to specify them. For example, it is cheaper to buy 6 and 8 foot lengths than to cut them out of 12 and 16 foot lengths.

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## BRITISH COLUMBIA FOREST SERVICE BULLETINS.

### Farm Buildings Series.

1. Combination or General Purpose Barns for Prairie Farms.
2. Dairy Barns, Milk and Ice Houses for Prairie Farms.
3. Beef Cattle Barns for Prairie Farms.
4. Horse Barns for Prairie Farms.
5. Sheep Barns for Prairie Farms.
6. Piggeries and Smokehouses for Prairie Farms.
7. Poultry Houses for Prairie Farms.
8. Implement Sheds and Granaries for Prairie Farms.
9. Silos and Root Cellar for Prairie Farms.
10. Farm Houses for Prairie Farms.

### Timber Series.

11. British Columbia Box Woods.
12. How to finish British Columbia Woods.
13. British Columbia Tie Timber.
14. British Columbia Dimension Timber.

The above bulletins and also further information concerning British Columbia lumber are obtainable free from the Chief Forester, Victoria, B. C. Of the Timber Series, Bulletin No. 12, "How to Finish British Columbia Woods," is of special interest to home builders and owners, carpenters, architects, and building contractors.

### OTHER PUBLICATIONS.

Many publications and much useful information on farming and related subjects can be obtained on request from the various Government Public Service organizations of Canada, listed below.

(1.) **Alberta:**

Department of Agriculture, Edmonton.  
University of Alberta, Edmonton.  
Agricultural Schools at Olds, Vermilion and Lethbridge.  
Dominion Experimental Stations at Lethbridge, Lacombe, and Fort Vermilion.

(2.) **British Columbia:**

Department of Agriculture, Victoria, B.C.  
Dominion Experimental Farm, Agassiz, and Experimental Stations at Sidney, Salmon Arm, Summerland, and Invermere.

(3.) **Dominion:**

Department of Agriculture, Ottawa, Ont.  
Dominion Forestry Branch, Ottawa, Ont.

(4.) **Manitoba:**

Department of Agriculture, Winnipeg.  
Manitoba Agricultural College, Winnipeg.  
Dominion Experimental Farm, Brandon, and Experimental Station at Morden.

(5.) **Saskatchewan:**

Department of Agriculture, Regina.  
University of Saskatchewan, Saskatoon.  
Dominion Experimental Farm, Indian Head; Forestry Station, Indian Head; and Experimental Stations at Scott and Rosthern.

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Fifteen Hundred Million Feet  
a Year into

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Flooring, Ceiling, Sash and Doors, Lath, Boxes,  
Cooperage, Wooden Pipes, Tanks and Silos,  
Pulp and Paper, Bridge Timbers, Mine  
Props, Elevator Cribbing, Tele-  
phone Poles, Piling, Railway  
Ties, Fence Posts, Pickets,  
Paving Blocks,  
Furniture,  
and numerous other products.

# B. C. LUMBER

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The Province contains over 400,000,000,000 feet board measure, or over half the standing timber of Canada. There is plenty of it.

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The forests of British Columbia grow the best timber it is possible to obtain.

### USEFULNESS

The timber trees of British Columbia supply the

### MOST USEFUL OF ALL WOODS

particularly for building work, because of their lightness, strength, and ease of working.

**British Columbia Timber  
is "made in Canada"**

The lumber industry engaged in its manufacture is one of the best markets for the products of the farms of Western Canada. It is sound sentiment and sound business for Canadian farmers to buy

# B. C. LUMBER